

**Internal Guidance For Using “Information Needed For ESA Review
For Bank Stabilization Activities In Marine Waters”**

Information needed for ESA Review for Bank Stabilization Activities in Marine Waters:

1. The attached questionnaire has been developed to assist the Regulatory Project Manager (PM) in the review of potential impact of bank stabilization activities in marine waters to listed species, primarily listed fish species.
2. Because the questionnaire is developed to assist ESA Review, the language is worded for agents, consultants, and biologist not for the average applicant. It was too difficult to get at the information desired without using “terminology”.
3. The applicant may either incorporate the questionnaire into a Biological Evaluation (BE)/Biological Assessment (BA) or may complete the questionnaire and submit it separate from the BE/BA.
4. The questionnaire is also developed to assist the PM in determining the “need and purpose” of the project and identifying potential alternatives for the project through the discussion of “erosion”.
5. The drawing information is not required in order to put out a Public Notice, but asked in order to better understand the proposed project, the action area, and all the potential impacts. The drawings and photos requested will also assist the PM in evaluating impacts when a site visit is not possible. The drawing information requested herein does not change the “application complete” information requirements for Public Notices.
6. This questionnaire, along with the ESA Special Public Notice and the Information Paper describing when a Corps permit is needed for Bank Stabilization Activities in Marine Waters, will be mailed as a packet to all bank protection contractors with a cover letter explaining the concerns associated with bank protection activities.

**INFORMATION NEEDED FOR ESA REVIEW OF FISH
FOR BANK STABILIZATION ACTIVITIES IN MARINE WATERS**

Applicant: Please give this questionnaire to your agent or consultant developing the Biological Evaluation/Assessment (BE/BA). The questionnaire may either be filled out as a separate document or the information requested incorporated into the BE/BA.

Erosion:

1. Where is the majority of the erosion occurring – slumping at the top of the bank, slumping in the middle of the bank, slumping or undercutting at the toe of the bank?
 - Provide photograph(s) showing the erosion:
 - from the top of bank facing the water
 - from the beach at low water, facing the toe
 - a panorama showing the full height of the bank for the length of the project – from the beach facing the bank.
2. What do you believe is causing the erosion problem?
3. What is the purpose of your project? What do you want to accomplish?
4. How long have you owned your property?
5. How much of the bank has eroded since you have owned your property (in feet per year and total since purchase)?
6. When were the significant times of erosion – what time of year and which years?
7. How far is your house/structure and any appurtenant structures (i.e. septic field) from the edge of the bank?
8. Show the house/structure and any appurtenant structures (i.e. septic field) on the plan view drawing with dimensions and distance to top of bank.
9. What is the height of the bank? Are there water seeps in your bank?
 - Provide a photograph(s) of the seeps showing the full height of bank.
10. Describe the soil in the eroding bank (i.e. sand, glacial till, gravels, etc.)?
 - Soil probes may need to be done to describe the changes in the soil at varying layers.
11. How will the proposed bank protection stop or slow your erosion problem?

12. Was a geotechnical or geological report done for your property and project?
 - If so, provide a copy of the report.
13. Has there been a drainage assessment conducted for your property?
 - If so, provide a copy of the report.
14. Have you conducted an alternatives analysis for your project looking what is causing the erosion on your property and what solutions are available to you, including which of the solutions would have the least damage or be less invasive to the nearshore?
 - If so, provide a copy of the report or summary of your alternatives analysis.

Vegetation:

1. Is there a vegetated area currently along the shoreline? If so, how wide is it?
 - List the plant species present and their location on or near the bank (within 300 feet landward of MHHW).
 - Will any of the shrubs, saplings or trees be removed? If so, please provide a drawing showing the location, size, and type (species) of plants to be removed.
 - Describe the density of the plants in percent of cover and average number of plants per foot.
2. What is the approximate height of the trees on the bank (within 300 feet landward of MHHW)?
3. Is there vegetation overhanging the shore (trees and shrubs) on your property?
 - On the neighboring properties (300 feet to either side)?
4. Provide a panorama photograph(s) of the bank vegetation for the length of your project, standing on the shore facing the bank.
5. Are there any vegetated shallows or intertidal vascular plants on or adjacent to the shore or in the water?
 - On the neighboring properties (300 feet to either side)?
 - If eelgrass is likely to be present, you shall provide the Corps with results of a survey done during the spring/summer months, to determine the extent of the eelgrass. A dive survey may be necessary.

The Shore:

1. Describe the shore material(s) from the toe of bank to MLLW (i.e. mud, fine sand, sand, pea gravel, cobble, clay, hardpan)?
2. Provide a panorama photograph(s) of the shore during low tide, panning from the waterline to the bank from:
 - (1) each property line, and
 - (2) from the center of the property.

3. Is the shore material the same or different on the neighboring properties (300 feet to either side)?
 - If different, describe the shore on the neighboring properties.
4. Are there any natural beach complexity features (large woody debris, drift wood, or large rocks) on the shore in front of the property? In front of the neighboring properties (300 feet to either side)?
 - Describe the size, number and location of any natural beach complexity features.
5. Provide a panorama photograph(s) of the beach or other shore material for the length of your project, standing at the foot of the bank facing the water. The photograph(s) should be taken during low tide.
6. What is the shore slope and beach elevation relative to MLLW? Show on section-view drawing.
7. If you are repairing or replacing existing bank protection, has the shore or beach lowered or become steeper since you have owned the property (i.e. the footing of the bank protection is exposed)?
 - If so, by how much?
8. Describe any change in the shore material to the depth of the construction trench (i.e. sand in top "x" inches, hardpan "x" inches below the surface, etc.).
9. Describe the extent of the littoral drift cell where the project is located. It is useful to provide a map. This information can be obtained from Ecology Drift Cell reports, see references and tools section.

T&E Species Habitat

1. Are there any streams, creeks, or seasonal creeks/drainages on your property or on the neighboring properties?
 - Show streams, creeks, or seasonal drainages on the plan view drawing.
2. What fish or other aquatic species (i.e. oysters, clams, mussels, crabs, etc.) inhabit or frequent the shore in front of your property?
3. Describe, in general, any bank armoring that has occurred in the littoral drift cell.
 - Estimate the percent of the drift cell that has been protected.
4. Is there any bank armoring on the adjacent properties (300 feet to either side)?
 - If so, what type (rock, bulkhead, timber, etc.)?
 - Do you know the approximate age of the bank protection on the adjacent properties?
 - If so, when were they constructed?

5. How far is the next un-armored bank or shoreline with no shoreline structures (such as piers, floats, stairways) from your property to either side?
 - How long is the unarmored bank (in linear feet)?
6. Are there any tidal marshes, rivers, or mudflats within 1 mile of your property?
 - If so, how far away?
 - Show the location of the tidal marshes, rivers, or mudflats on a vicinity map.
7. Are there any rearing or holding areas for listed or forage fish species on your property? (contact WDFW to obtain this information)
 - On the neighboring properties (300 feet to either side)?
 - Within the littoral drift cell?
8. What benthic and epibenthic aquatic invertebrates are present on the shore in the “action area” for your project?
9. Are there any nesting or foraging areas for listed bird species within one mile of the proposed project area? If so, how close is the nest or forage area? Is it within the line of sight of the project area? (contact USFWS to obtain this information)
10. Are there any “haul out” areas for marine mammals or sea turtles in the project area? On the neighboring properties (300 feet to either side)? (contact USFWS and NMFS to obtain this information)
11. Are there any ESA-listed plant species in the project area? On the neighboring properties (300 feet to either side)? (contact USFWS to obtain this information)
12. Does the project area support habitat for ESA-listed mammals? Do the neighboring properties (300 feet to either side)? (contact USFWS to obtain this information)

Waterbody

1. Are there any State listed Model Toxic Clean-up (MTCA) sites in the project area? On the neighboring properties (300 feet to either side)? (contact Ecology to obtain this information)
2. Are there any Federally listed Superfund clean up sites in the project area? On the neighboring properties (300 feet to either side)? (contact EPA to obtain this information)
3. Is the project in a Federal Marine Sanctuaries or National Wildlife Refuge? Is it adjacent to one (300 feet to either side)? (contact NOAA and USFWS to obtain this information)

Site Access

1. How will you or your contractor access the site?
 - By barge?

- By upland access point, like a road (new or existing)?
2. When will the site be accessed (i.e. during low tide)?
 3. If using a barge, describe the barge design (i.e. wedged bottom, on skids), the total area in square feet of the barge that will ground out, and barge anchoring method.

Types of Construction

1. What equipment will be used to construct the proposed project? (Be specific)
2. What type of material will be used to construct the project (i.e. quarry spalls, large wood, 3-man rock, concrete, etc.)?
3. Describe the sequence of construction (i.e. access, excavation of material, project placement, clean-up, etc.).
4. Where will the equipment be situated - the staging area (on uplands, on a shore/beach)?
5. If on a shore/beach, what type of matting will be used under the equipment during construction (i.e. sheet piling, gravel matting, logs, etc.)?
6. What type of material will be stockpiled? For how long?
7. Where will stockpiled material and excavated material be placed?
 - Stockpiling on the beach can be damaging to marine species and is highly discouraged: where possible, stockpile all material on uplands or on a barge.
8. What measures will be taken to ensure no fish are stranded or harmed during construction?
9. Where will construction equipment and material be cleaned (i.e. offsite and 300 feet landward of the waterbody)?
10. Describe the sediment and/or erosion control measures to be used during construction.
11. Describe how the site will be cleaned up after construction is complete.
12. Provide the name, address, and telephone number of the contractor.

Timing of work

1. What are your proposed construction dates?
2. When do you plan on constructing the project (i.e. during low tide)?

3. How long will construction take (give minimum and maximum)?

Beach/Shoreline Enhancement

1. Will any pea gravel or other beach material be placed on the shore or beach after construction?
 - If so, describe the type of material (sand, pea gravel, etc.).
 - How much material will be placed on-site?
 - How will the material be placed (i.e. by hand, excavator, etc.)?
 - Will the pea gravel or other beach material be monitored for stability? If so, provide a copy of the proposed monitoring protocol.
2. Will any disturbed upland areas be revegetated after construction?
 - If so, describe what types of plants will be planted.
 - Describe the planting plan (how, when and how many plants).
 - Describe monitoring protocol for the revegetation area.
 - What contingencies do you have planned if some or all of the plants don't survive through the monitoring period (average 3- to 5-years)?

Other Permits or Reviews

1. Have you filed for a SEPA determination?
 - provide a copy of the checklist
 - provide a copy of the final determination, if complete.
2. Has an Hydraulic Project Approval (HPA) been obtained from the Washington State Department of Fish and Wildlife (WDFW)?
 - If so, provide a copy of the HPA.
 - What timing or other conditions were imposed?
3. Have you applied for a local Shoreline permit?
 - Has it been issued?
 - If so, provide a copy of the Shoreline permit or exemption.

Drawings:

1. Vicinity Map = Vicinity Map shows the location of the property including major waterbody, roads, and where the site is located in Washington State. The vicinity map should be detailed enough so that we could drive to your property and gain access to inspect the site.
 - Please note that a site inspection may be required during the permit review process.
2. Existing Conditions - Plan View
 - This drawing illustrates the existing project area as if you were looking down at the site from overhead.
 - Show existing tidal elevations: line of MLLW, MHW, MHHW, and/or OHW (WDFW line of jurisdiction).

- Use NOS datum of MLLW = 0.0.
 - Show existing structure to be protected and any appurtenant structures (i.e. septic field) with dimensions (length, width, etc.) and distance from top of bank.
 - Show any existing shoreline structures with dimensions (i.e. bank protection, piers, floats, stairways, drainpipes in bank, etc.).
 - Show any existing drainage or stormwater control systems.
 - Show any trees or shrubs along the top of bank.
 - Show any vegetation, including exact location of fallen trees, driftwood, or large rocks on or off the shore.
 - If eelgrass or kelp is present, show exact location and distance from MHHW line.
 - Show adjacent properties (300 feet to either side) and any shoreline structures on those properties (i.e. bank protection, piers, floats, stairways, etc.).
 - Show any streams, creeks, or seasonal drainages on the property or adjacent properties (300 feet to either side).
 - Show location of section view(s).
3. Existing Conditions – Section or Elevation View
- The drawing illustrates the existing shoreline as if it were cut from the side.
 - The section view should be at the location of the erosion.
 - If erosion is for length of property to varying extents then provide 3 section views – one at each property line and one at the center of the property.
 - All structures or activities shown should include complete dimensions (height, width, etc).
 - Show the existing tidal elevations: line of MLLW, MHW, MHHW, and/or OHW (WDFW line of jurisdiction).
 - Show the existing structure and any appurtenant structures (i.e. septic field) with dimensions and distance from top of bank.
 - Show any existing shoreline vegetation.
 - Show existing shore slope from toe of bank to MLLW.
 - Show existing bank slope from toe of bank to top of bank.
 - Show any existing drainpipes in the bank.
 - If eelgrass or kelp present, show exact location, depth and distance from MHHW line.
4. Proposed Project – Plan View
- This drawing illustrates the proposed project area as if you were looking down at the site from overhead.
 - Show the tidal elevations after proposed project construction: lines of MLLW, MHW, MHHW, and OHW (WDFW line of jurisdiction).
 - Show existing structure to be protected and any appurtenant structures (i.e. septic field) with distance from top of bank.
 - Show proposed structure with complete dimensions (length, width, etc.).
 - Note the type and quantity of materials used (i.e. rock, concrete, timber, piles, etc.).
 - Show existing bank line in relation to proposed project.

- Show proposed project (new bank line) to adjacent properties (300 feet to either side) existing bank lines.
- Show any proposed drainage or stormwater control systems.
- Show width of work corridor on the beach and on the upland.
- Show the location of any areas to be excavated – trenches on the beach, bank excavation, etc.
- Show upland access point or barge landing.
- Show location of the stockpiling (construction and excavated material) – upland, beach or barge.
- Show any existing streams, creeks, or seasonal drainages on the property or adjacent properties (300 feet to either side).
- If eelgrass or kelp present, show exact location and distance from MHHW line.
- Show location of the section view.

5. Proposed project – Section View

- The drawing illustrates the proposed activity as if it were cut from the side.
- All structures or activities shown should include complete dimensions (height, width, etc.)
- Provide three section views – one at each property line and one at the center of the property
- Show the tidal elevations after project construction: line of MLLW, MHW, MHHW, and OHW (WDFW line of jurisdiction).
- Show proposed project with height, depth and width from existing bank.
- Show proposed project in relation to existing bank
- Show the existing structure and any appurtenant structures (i.e. septic field) with distance from top of bank.
- Show beach slope from toe of bank to MLLW after project construction.
- Show bank slope from toe of bank to top of bank after project construction.
- Show the location of the stockpiling (construction and excavated material) – upland, barge, or beach, including distance from MHHW line.
- Show the location of any areas to be excavated – trenches on the beach, bank excavation, etc.
- Show any existing or proposed drainpipes in the bank.
- Show width of work corridor on beach and upland
- Show width and depth of any gravel placement (i.e. as required under WDFW HPA).
- If eelgrass or kelp present, show exact location, depth and distance from MHHW line.

Useful References and Tools

Habitat Classification System (Beaches, Marshes, Estuaries):

- *A Marine and Estuarine Habitat Classification System for Washington State*. Dethier, M.N., Department of Natural Resources. 1990.
- *Classification of Wetlands and Deepwater Habitats of the United States* Cowardin, US Fish and Wildlife Service (FWS). 1992.

Drift Cell Maps:

- *Net Shore-drift in Washington State*. Washington State Department of Ecology. March 1992.

Marine Species Identification:

- *Seashore life of the northern Pacific coast: an illustrated guide to northern California, Oregon, Washington, and British Columbia*. Kozloff, Eugene N. 1993. University of Washington Press.
- *Marine Invertebrates of the Pacific Northwest*. (Linda Price and Eugene Kozloff, 1996.

Plant identification:

- "*Wetland Plants of the Pacific Northwest*. U.S. Army Corps of Engineers, 1984.

Tidal Elevations:

- Tidal elevations may be obtained by contacting the Corps or checking the following website: <http://www.nws.usace.army.mil/hh/tides/tides.htm>.

Agency Websites:

- Environmental Protection Agency: <http://www.epa.gov/r10earth/>
- King County Department of Natural Resources: <http://dnr.metrokc.gov/topics/marine/MARtopic.htm>
- National Marine Fisheries Service: <http://www.nwr.noaa.gov/>
- Puget Sound Action Team: http://www.wa.gov/puget_sound/
- U.S. Army Corps of Engineers: <http://www.nws.usace.army.mil/reg/reg.htm>
- U.S. Fish and Wildlife Service: <http://endangered.fws.gov/index.html>
- Washington Department of Natural Resources: <http://www.wa.gov/dnr/>
- Washington Department of Ecology (Shorelands): <http://www.ecy.wa.gov/apps/shorephotos/>
- Washington Department of Fish and Wildlife: <http://www.wa.gov/wdfw/>

GLOSSARY OF TERMS

ACTION AREA – Action area is defined by the ESA consultation regulations as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” [50 CFR 402.02] The issuing of a permit is the “Federal action.”

ALTERNATIVES ANALYSIS – An alternatives analysis reviews the potential alternatives to both the location of the project and the design of the project in order to minimize impacts to the resource.

ANADROMOUS – The life-history pattern of a fish that features egg incubation and early juvenile development in freshwater, migration to seawater for adult development, and return to freshwater for spawning. [Myers, et al. 1998]

BIOLOGICAL EVALUATION/ ASSESSMENT (BE/BA) – Information prepared by, or under the direction of, a Federal agency to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat. The outcome of this biological assessment/evaluation determines whether formal consultation or a conference is necessary. [50 CFR 402.02, 50 CFR 402.12]

BENTHIC – Organisms living on or within the substrate of a stream, lake or marine/estuarine areas.

CORPS – U.S. Army Corps of Engineers, Seattle District, Regulatory Branch.

CY – “cubic yards”

DRIFT CELL - The “drift cell” is the partially compartmentalized zone along the coast that acts as a closed or nearly closed system with respect to transport of beach sediment. For example, beach material may be supplied from an eroding bluff or feeder bluff and dispersed by waves and currents on beach down current from the bluff. [WA State Dept of Ecology, 1992.]

EELGRASS – Eelgrass (*Zostera marina* or *Zostera japonica*) is a rooted plant that grows in intertidal and shallow subtidal estuarine and marine areas. It is distinguished by flat, grass-like leaves up to 1.4 cm (about $\frac{3}{4}$ of an inch) wide and can be over 3 meters (6 feet) in length (height and width varying by species). The upright stems originate from an underground rhizome. The seeds are enclosed in elongated membranous, translucent packets. Eelgrass occurs up to about 1.8 meters (6 feet) above MLLW and as deep as 6.6 meter (22 feet) below MLLW, elevations varying by species. Both species grow well in sandy or muddy substrate and may be found along both low and moderate energy shorelines throughout Puget Sound. [US Army Corps of Engineers, 1984]

EPIBENTHIC – Organisms living on the surface of bottom sediments in a stream, lake or marine/estuarine areas.

FISH HABITAT – The aquatic environment and the immediately surrounding terrestrial environment that, combined, afford the necessary biological and physical support systems required by fish species during various life history stages.

FORAGE FISH / FORAGE SPECIES – These are generic terms for all of those fish species that as adults are small enough that salmonids may prey upon, particularly in the estuarine or marine environment. The primary forage fish in estuarine or marine areas include pacific herring, surf smelt, and sand lance. (Also known by the term “bait fish.”)

FORAGING AREA – Foraging area is an area of a stream, lake or marine/estuarine area that is a primary feeding area for birds, mammals, salmonids, or their prey species.

GRAVEL – Substrate particle size between 2 and 64 mm (0.08 and 2.5 inches) in diameter.

‘HAUL OUT’ AREA – An upland area where marine mammals exit the water. May be used as refuge, breeding or nursery area.

HYDRAULIC PROJECT APPROVAL (HPA) – This refers to a process and permit specified in the Washington Administrative Code at 220-110-030.

INTERTIDAL VASCULAR PLANTS – Fleshy plants that grow between the extreme high tide and extreme low tide areas of brackish or saltwater systems. Examples include brass buttons, Lyngby’s sedge, pickleweed, Pacific silverweed, salt grass, saltweed (fat hen), and Seaside plantain. [Corps, 1984]

KELP – Large brown alga or seaweed that grows in the intertidal region and are also plentiful below the low-tide line (Phylum *Phaeophyta*). A feature of many kelps is a holdfast consisting of a mass of stuffy rootlike structures. This type of holdfast, looking like something fished out of a jar of mixed pickles, is limited to the brown algae. Float bladders are another distinctive characteristic of many representatives of this group. [Kozloff, 1993]

LARGE WOODY DEBRIS (LWD) – Sound and rotting logs and stumps that provide habitat for plants, animals and insects and a source of nutrients for soil development. Material generally greater than 8–10 cm in diameter (4-5 inches). [Biodiversity Guidebook, Ministry of Forest Research Programs, British Columbia, 1998]

LISTED SPECIES – Any species of fish, wildlife or plant, which has been determined to be endangered or threatened under section 4 of the Act. [50 CFR 402.02]

LITTORAL – The coastal area including the shoreline.

MACROALGAE – Algae (red, brown or green) where each plant is large enough to distinguish with the naked eye, usually referring to algae that grows in estuarine or marine systems. Algae may occur as individual plants in the intertidal or low tide areas such as Kelp or as thin membranes, or thick rubbery sometimes warty sheets that can be found on rocks in the intertidal area. [Kozloff, 1993]

MACROINVERTEBRATE – An invertebrate animal (without backbone) large enough to be seen without magnification. [Kozloff, 1993]

MARINE/ESTUARINE AREAS – Refers to all saltwater areas in Washington State including the Pacific Ocean, Strait of Juan De Fuca, Strait of Georgia, Puget Sound, Hood Canal, Grays Harbor, and Willapa Bay. It also includes the mouth of the Columbia River (Baker Bay) unless otherwise stated. [Dethier, 1990]

MEAN HIGH WATER (MHW) MARK– As used by the Corps of Engineers, and as used in this document, this term refers to the elevation on the shore of tidal waters (ocean waters, bays, estuaries, and certain rivers) “reached by the plane of the mean (average) high water. Where precise location of the actual line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years.” [33 CFR 329.12(a)(2)] There are set tide gauges throughout Washington State. The MHW for these tide gauges may be obtained by contacting the Corps or checking the following website: <http://www.nws.usace.army.mil/hh/tides/tides.htm>.

MEAN HIGHER HIGH WATER (MHHW) MARK – As used by the Corps of Engineers, and as used in this document, this term correlates to OHW in estuarine or marine areas. MHHW refers to tidal waters (ocean waters, bays, estuaries, and certain rivers) on the West Coast of the U.S. where there are two high tides, and indicates the elevation of the highest of these tides (averaged as above under MHW). There are set tide gauges throughout Washington State. The MHHW for these tide gauges may be obtained by contacting the Corps or checking the following website: <http://www.nws.usace.army.mil/hh/tides/tides.htm>.

MEAN LOWER LOW WATER (MLLW) MARK - MLLW refers to tidal waters (ocean waters, bays, estuaries, and certain rivers) on the West Coast of the U.S. where there are two high tides and two low tides, and indicates the elevation of the lowest of these tides (averaged as above under MHW). There are set tide gauges throughout Washington State. MLLW is the base line datum for these tide gauges with an elevation of 0.0 feet.

MIGRATION AREAS - The aquatic areas where juvenile, subadult, or adult salmonids may be found moving and/or staging at certain times as they carry out their anadromous life cycle. The locations and times will vary by species and life stage (including ESUs and DPSs).

MODEL TOXIC CLEANUP ACT SITE – A project site designated for clean up of hazardous materials in accordance with clean-up orders from the Washington State Department of Ecology under the State of Washington Model Toxic Cleanup Act. **MUD FLATS** – Mud flats are one of 6 “special aquatic sites”. Mud flats are broad flat areas along the coast and in coastal streams to the head of tidal influence and in inland lakes, ponds, and riverine systems. When mud flats are inundated, wind and wave action may re-suspend bottom sediments. Coastal mud flats are exposed at extremely low tides and inundated at high tides with the water table at or near the surface of the substrate. The substrate of mud flats contains organic material and particles smaller in size than sand. They are either unvegetated or vegetated only by algal mats. [40 CFR 230.42(a)] (See SPECIAL AQUATIC SITES)

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NATURAL BEACH COMPLEXITY FEATURES – Features, such as large woody debris or rocks, that naturally occur on the beach in freshwater, estuarine and marine areas, providing refuge and habitat for salmonids and other species.

NEARSHORE – Referring to the area in marine/estuarine waters extending from the extreme high tide to the shallow subtidal area (a depth of 20 feet at MLLW). [Dethier, 1990]

NMFS – The National Marine Fisheries Service.

NOS DATUM – The Federal standard for elevations in marine waters is set by the National Oceanic Service (NOS). On the continental U.S. west coast (Pacific Ocean), NOS has set the base elevation (datum) at mean lower low water (MLLW) where MLLW= 0.0' (sea level).

ORDINARY HIGH WATER (OHW) MARK– As defined for WDFW regulatory jurisdiction, "Ordinary high water line" means the mark on the shores of all waters that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in ordinary years, as to mark upon the soil or vegetation a character distinct from that of the abutting upland: Provided, That in any area where the ordinary high water line cannot be found the ordinary high water line adjoining saltwater shall be the line of mean higher high water and the ordinary high water line adjoining freshwater shall be the elevation of the mean annual flood. (WAC 220-110-020).

PEA GRAVEL – As used in this document, this is gravel which is clean and round, not crushed (and not coarse sand). Pea gravel may be no smaller than 1/16 of an inch in diameter and no larger than ¼ of an inch in diameter. At least 80 percent of the gravel sized between 1/16 of an inch and ¼ of an inch in diameter. The other 20 percent may exceed ¼ of an inch but not to exceed 3/8 of an inch in diameter. [WAC 220-110]

PREDATOR – A species which habitually preys upon others (i.e., raptor). In this document, predator relates specifically to species that prey on listed fish species.

PREY SPECIES – A species that is a food source for others. In this document, prey species relates specifically to species that are a primary food source for listed fish species, including but not limited to forage fish, terrestrial insects, aquatic insects, and epibenthic invertebrates.

REARING AREA – Areas in streams, lakes or estuaries where juvenile salmon and trout find food and shelter to live and grow, from fry to smolts, preparing for ocean migration. Varying from species, ESU and DPS, fry may immediately enter an estuary and remain there until they are smolts or may stay for varying periods of time in lakes or streams during the outmigration to the ocean. Information on whether a specific location is a rearing area can be obtained from the Corps of Engineers or WDFW.

RIPARIAN – Pertaining to anything connected with or immediately adjacent to (within 300 feet) the banks of a stream or other body of water. Riparian refers to the upland and wetland bank or shoreline of freshwater, estuarine and marine systems. (See WOODY RIPARIAN VEGETATION)

REVEGETATION – Upon completion of the work in a wetland or riparian area (freshwater, estuarine or marine), the site shall be replanted with native vegetation during the next appropriate planting season. Removal or destruction of existing wetland or riparian (freshwater, estuarine and marine areas) vegetation shall be held to the absolute minimum needed for construction. Immediately following construction, riparian zones affected by the construction shall be replanted with native vegetation. Appropriate measures shall be taken to ensure revegetation success. [Corps, 1997. General Conditions for Nationwide Permits, General Condition 3. Revegetation]

RIPARIAN AREA – The wetland or upland area directly adjacent to (within 300 feet) of a stream or other body of water (freshwater, estuarine, and marine).

RIP RAP – A layer of large, durable materials (usually rock) used to protect a bank from erosion. The material averages 4- to 5-feet in diameter.

SALMONID – All those anadromous fish occurring in, and native to, Pacific Ocean drainages of the United States – including steelhead trout, bull trout and anadromous forms of cutthroat and salmon, and not including salmonids occurring in the Atlantic Ocean and Great Lakes drainages. [Myers, et al. 1998]

SALT MARSH – Any area adjacent to salt water where the interstitial soil salinity is greater than or equal to 0.5 parts per thousand at any time of year or where the plant community is comprised of at least 5% total cover of any of the hydrophytic plants characteristic of salt marshes. For a list of the plant species see the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, Special Public Notice on Nationwide Permits, dated February 22, 1997. [Corps, 1984]

SANCTUARIES AND REFUGES – Sanctuaries and refuges are one of 6 “special aquatic sites”, consisting of areas designated under State and Federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources. [40 CFR 230.40(a) Subpart E] (See SPECIAL AQUATIC SITES)

SEDIMENT –Particles derived from rocks or biological materials that are or have been transported by water. [Meehan, 1991.]

SEDIMENTATION – Deposition of material suspended in water or air, usually when the velocity of the transporting medium drops below the level at which material can be supported. Deposition of sediment may be via five processes: weathering, erosion, transportation, deposition, and/or diagenesis (consolidation into rock). [Meehan, 1991.]

SERVICE(S) - In this document, this term refers to the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (or both).

SPAWNING AREA – These are substrates into and upon which aquatic species will lay their eggs. Salmonid spawning areas vary by species, ESU, or DPS. Typically, salmon species eggs require 30 to 90 days of incubation. Salmon species alevin typically remain in the gravel for 30 to 150 days, emerging as fry in the spring or summer months. Total time in the gravel is typically 60 to 240 days. Bull trout eggs require a minimum of 200 days of incubation. Bull trout fry have been found to stay in gravel for 3 weeks after emergence, for a total time in gravel of 221 days. Known areas are identified by species in the WDFW StreamNet data base. Forage fish spawning areas are identified in the Washington State Department of Fish and Wildlife’s 1995 “Puget Sound Intertidal Baitfish Spawning Beach Survey Project” document.

SPECIES – Includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. [ESA 3(16)]

SPECIAL AQUATIC SITES – “Special Aquatic Sites” means those sites identified in Subpart E of the Environmental Protection Agency’s Guidelines for Specification of Disposal Sites for

Dredged or Fill Material (Section 404(b)(1) Guidelines) and include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. They are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. [40 CFR 230.3(q-1) and 40 CFR 230.10(a)(3)] (See MUD FLATS, SANCTUARIES AND REFUGES, VEGETATED SHALLOWS and WETLANDS).

STAGING – The storage and operation area for construction equipment and material.

SUBSTRATE – The mineral and/or organic material or sediment that forms the bed of the stream, lake or marine/estuarine areas. [Meehan, 1991]

SUPERFUND SITE – A specific project site designated for clean up of hazardous materials and under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as ordered and administered by the U.S. Environmental Protection Agency (EPA).

T&E SPECIES – Species listed as threatened or endangered under the Endangered Species Act of 1973 as amended.

THREATENED SPECIES - Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. [ESA 3(20)]

TIDAL WETLANDS – Marshes and wetlands adjacent to (bordering and contiguous) tidal waterbodies and the hydrology of the wetland or marsh is directly influenced by the tides. (See also WETLANDS.) [Corps, 1984]

UPLAND – As used in this document, any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. [Corps, 1987]

USFWS – United States Fish and Wildlife Service

VEGETATED SHALLOW - Vegetated shallows are one of 6 “special aquatic sites”. Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass, eelgrass, kelp, other macroalgae, and intertidal vascular plants in estuarine and marine systems as well as a number of freshwater species in streams and lakes. [40 CFR 230.43(a) Subpart E] (See SPECIAL AQUATIC SITES)

WDFW – Washington State Department of Fish and Wildlife.

WETLANDS – Wetlands are one of 6 “special aquatic sites”. “Wetlands” means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. [33 CFR 328.3(b) and 40 CFR 230.41(a)(1)] (See SPECIAL AQUATIC SITES)

WOODY RIPARIAN VEGETATION – As used in this document, woody riparian vegetation is any vegetation along (within 300 feet) the shoreline of a lake, stream or marine/estuarine areas that has a ligenous or wood tissue, including small saplings or twigs. (See RIPARIAN). [Meehan, 1991]